



# Challenging Factoring Completely Problems

## Part I

Video Notes

[Video Link](#)

# Challenging Factoring Completely Problems

What background knowledge will I need?

- Factoring Completely

Factor:

$$36b^6x^8 - 36b^6$$

GCF:

$$36b^6(x^8 - 1)$$

Diff. of Perfect  $\square$ :

$$36b^6(x^4 + 1)(x^4 - 1)$$

Diff. of Perfect  $\square$  again:

$$36b^6(x^4 + 1)(x^2 + 1)(x^2 - 1)$$

Diff. of Perfect  $\square$  again:

$$36b^6(x^4 + 1)(x^2 + 1)(x + 1)(x - 1)$$

$$36b^6(x^4 + 1)(x^2 + 1)(x + 1)(x - 1)$$

Questions to ask yourself when factoring:

→ Is there a GCF? **yes!**

→ Is it a difference of perfect squares? **yes!**

→ Is it a factorable trinomial? **No!**

→ Can I factor by grouping?

→ Is it completely factored? **Yes!**

binomial  
subtraction  
perfect squares

Factor:

$$12x^4z^2 - 87x^2z^2 + 75z^2$$

GCF:

$$3z^2(4x^4 - 29x^2 + 25)$$

$$\begin{array}{r} 4 \\ 2 \overline{) 4} \\ 2 \end{array} \quad \begin{array}{r} 25 \\ 5 \overline{) 25} \\ 5 \end{array}$$

Trinomial:

$$3z^2(4x^2 - 25)(x^2 - 1)$$

Diff. of Perfect  $\square$ :

$$3z^2(2x+5)(2x-5)(x+1)(x-1)$$

$$\boxed{3z^2(2x+5)(2x-5)(x+1)(x-1)}$$

### Questions to ask yourself when factoring:

- ✓ → Is there a GCF?
- ✓ → Is it a difference of perfect squares?
- ✓ → Is it a factorable trinomial?
- ✓ → Can I factor by grouping?
- Is it completely factored?